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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,589	07/07/2005	Narihiko Togou	P28175	7817
7055 7590 10/29/2009 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191				
EXAMINER HAUTH, GALEN H				
ART UNIT		PAPER NUMBER		
1791				
NOTIFICATION DATE		DELIVERY MODE		
10/29/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com  
pto@gbpatent.com

### Office Action Summary

**Application No.**

10/541,589

**Applicant(s)**

TOGOU ET AL.

**Examiner**

GALEN HAUTH

**Art Unit**

1791

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7, 9 and 10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/10/2009 has been entered.

***Response to Amendment***

2. Acknowledgment is made to applicant's amendment of claim 1 and the addition of claim 10. No new matter has been added. Acknowledgment is made to applicant's cancellation of claim 8.

***Claim Rejections - 35 USC § 103***

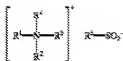
3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 1, 3-4, 7, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kesling et al. (PN 4599366) in view of Okubo et al. (Pub No 2001/0034390)
  - a. With regards to claim 1, Kesling teaches a method for preparing expandable beads (abstract) in which copolymers of styrene and olefin (col 2 ln 33-48, butadiene/styrene copolymer) are formed into beads and impregnated with a blowing agent to form expandable beads (col 2 ln 58-65). Kesling teaches applying a solution of a quaternary ammonium salt to the expandable styrene beads (col 4 ln 10-20) at 0.1-0.4 parts per weight to provide anti-static properties to the polymer (abstract). Kesling does not teach a temperature or pressure at which the solution is applied; however, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use standard temperature and pressure of 20 degrees Celsius and 1 atmosphere in the absence of a teaching of temperature and pressure or the teaching of heating/cooling or pressurization/vacuum (1 atmosphere being 0.1 MPa). Kesling does not teach the specific formula for the quaternary ammonium salt.
  - b. Okubo teaches a method for improving antistatic properties (abstract) of styrene and olefinic particles used in a pre-expansion and expansion molding process (§ 0072) in which a quaternary ammonium salt is applied (§ 0018)



c. In which R1 is an alkyl group with 6 carbon atoms, R2 and 3 are an alkyl group with 1 to 4 carbon atoms, and R4 is an alkyl group with 1 to 4 carbon atoms. R5 is an oxyhydrocarbon with 1 to 24 carbon atoms (§ 0019). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use an R5 group with an oxyhydrocarbon of 2 carbon atoms through routine optimization of the range taught by Okubo. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the quaternary ammonium salt of Okubo as the quaternary ammonium salt of Kesling as both relate to quaternary ammonium salts added to styrene olefin resin expandable articles and the salt of Okubo is an art recognized equivalent of the salt of Kesling presenting a reasonable expectation of success. Though there is no discussion of the migration of the surfactant into the polymeric bead, the mixing of the surfactant with the polymeric bead is conducted under the claimed process conditions with the claimed materials, thus an amount of migration of the surfactant into the polymeric bead is inherently present.

**NOTE:** Where ... the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. **Whether the rejection is based on “inherency” under 35 USC § 102, on prima facie obviousness” under 35 USC § 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO’s inability to manufacture products or to obtain and**

**compare prior art products.”** In re Best, 562 F2d 1252, 1255, 195 USPQ 430, 433-4 (CCPA 1977).

- d. With regards to claim 3, Kesling in view of Okubo teaches the use of a long chain alkyl quaternary ammonium salt which is cationic.
  - e. With regards to claim 4, Kesling in view of Okubo, as applied to claim 1 above, teaches using a solution at 20 degrees Celsius.
  - f. With regards to claim 7, Kesling in view of Okubo, as applied to claim 1 above, teaches using a surfactant with at least 11 carbon atoms.
  - g. With regards to claim 9, Okubo teaches 3 R groups of 1 to 4 carbon atoms and one R group of 6 to 24 carbon atoms. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a fourth R group of 6 to 20 carbon atoms through routine optimization of the range taught by Okubo as well as an R group with two carbon atoms through routine optimization of the range taught by Okubo.
  - h. With regards to claim 10, Kesling teaches the antistatic effect of the additive.
6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kesling et al. (PN 4599366) in view of Okubo et al. (Pub No 2001/0034390) as applied to claim 1 above, and further in view of Harper (NPL – Modern Plastics Handbook).
- a. With regards to claim 2, Kesling in view of Okubo teaches a method for applying an antistatic agent to polystyrene/olefin beads in which the antistatic agent is present in a solvent (col 3 ln 50-53), but Kesling does not state that the solvent is aqueous.

- b. Harper teaches that it was known in the art at the time the invention was made to use an aqueous or organic solvent for the application of quarternary ammonium salt antistatic agents (pg 4.13). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use an aqueous solvent in the process of Kesling as such was a known solvent for use with quarternary ammonium salt antistatic agents presenting a reasonable expectation of success.
7. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kesling et al. (PN 4599366) in view of Okubo et al. (Pub No 2001/0034390) as applied to claim 1 above, and further in view of Henn et al. (PN 5563178).
- a. With regards to claim 5, Kesling in view of Okubo, as applied to claim 1 above, teaches a method for forming expandable styrene/olefin beads in which the beads are pre-expanded and then molded (col 1 ln 20-27). Kesling does not teach a steam pressure for heating.
- b. Henn teaches a method for expanding a styrene bead with pentane as the blowing agent (col 5 ln 24-36) in which the bead is subjected to a prefoaming (pre-expansion) by subjecting it to steam at 120 degrees Celsius (col 5 ln 51-52, 120 degree steam is at 0.0972 MPa gauge). It would have been obvious to one of ordinary skill in the art at the time the invention was made to subject the expandable beads of Kesling in view of Okubo to pre-expansion by steam at .0972 MPa gauge, as such is an art recognized technique for pre-expansion of

expandable styrene containing beads for the purposes of storage or pre-foaming (col 4 ln 21-28 of Henn).

c. With regards to claim 6, Kesling in view of Okubo and further in view of Henn as applied to claim 5 above provides a pre-expanded styrene modified olefin based resin bead produced by the method of claim 5. Henn teaches that the pre-expanded styrene beads are then further molded by passing steam over them at a temperature of 107 to 130 degrees Celsius (col 6 ln 1-8, 107-130 Celsius steam is at a pressure range of 0.0281 – 0.1687 MPa gauge). It would have been obvious to one of ordinary skill in the art at the time the invention was made to expand the pre-expanded beads of Kesling in view of Okubo and further in view of Henn using steam at 0.05 to 0.15 MPa gauge as the steam pressure is a result effective variable that can be changed to affect the rate at which the pre-expanded styrene beads fully expand.

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1-7 and 9 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GALEN HAUTH whose telephone number is (571)270-5516. The examiner can normally be reached on Monday to Thursday 8:30am-5:00pm ET.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571)272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GHH/

/Christina Johnson/  
Supervisory Patent Examiner, Art Unit 1791